

IN THE SPECIFICATION:

On page 1 of the English language translation of the specification, please amend the first heading of the specification to appear as follows:

~~Description~~ Technical Field

On page 1 of the English language translation of the specification, please insert a heading between the first and second full paragraphs of the specification and amend the second full paragraph to appear as follows:

The invention relates to a constant velocity joint in the form of a counter track joint.

Background

Such joints have the following characteristics: ~~[[-]]~~ an outer joint part which comprises a first longitudinal axis L_A as well as an attaching end and an aperture end which are positioned axially opposite one another, and which comprises first outer ball tracks and second outer ball tracks~~[[,]]~~; ~~[[-]]~~ an inner joint part which comprises a second longitudinal axis L_i and attaching means for a shaft pointing towards the aperture end of the outer joint part, and which comprises first inner ball tracks and second inner ball tracks~~[[,]]~~; ~~[[-]]~~ the first outer ball tracks and the first inner ball tracks form first pairs of tracks which receive first balls~~[[,]]~~; ~~[[-]]~~ the second outer ball tracks and the second inner ball tracks form second pairs of tracks which receive second balls~~[[,]]~~ ; and ~~[[-]]~~ a ball cage is positioned between the outer joint part and the inner joint part and comprises circumferentially distributed first cage windows each accommodating one of the first balls and circumferentially distributed second cage windows each accommodating one of the second balls.

On page 2 of the English language translation of the specification, please insert a heading in the specification between the first and second full paragraphs and amend the first and second full paragraphs which are on page 2 and continue onto page 3 of the specification to appear as follows:

In connection with a constant velocity fixed joint whose pairs of tracks jointly widen towards the aperture, it is already known from ~~DE 42 34 488 C1~~ U.S. Patent No. 5,509,856 to propose a cage which comprises cage windows which are positioned

opposite one another in a radial plane, which have a first shorter circumferential length as well as having cage windows whose centres are positioned outside said radial plane and outside a plane arranged perpendicularly thereto, having a second greater circumferential length.

Summary Of The Invention

~~It is the object of the~~ The present invention ~~to propose~~ provides improved constant velocity joints wherein more particularly the cage comprises an increased strength. ~~The objective is achieved in that~~ Specifically, the circumferential length L1 of the first cage windows for the balls in the first pairs of tracks is greater than the circumferential length L2 of the second cage windows for the balls in the second pairs of tracks. This permits a method of assembly wherein first the first balls, one after the other, are mounted in first pairs of tracks which widen from the aperture end to the attaching end and wherein then the second balls, one after the other, are mounted in second pairs of tracks which widen from the attaching end to the aperture end. For mounting said second balls in the second pairs of tracks, there is required a smaller over-articulation angle and thus also a shorter circumferential length of the respective windows than there is required for mounting the first balls in the first pairs of tracks.

On page 3 of the English language translation of the specification, please amend the first full paragraph of the specification to appear as follows:

According to a first embodiment, ~~it is proposed that~~ the first pairs of tracks and second pairs of tracks are arranged so as to alternate across the circumference. Alternatively, it is possible for pairs of first pairs of tracks and pairs of second pairs of tracks to be arranged so as to alternate in the circumferential direction.

On page 3 of the English language translation of the specification, please add the following heading between the third and fourth full paragraphs of the specification to appear as follows:

The advantages of the invention are particularly obvious in joints with a large number of balls, i.e. comprising eight or ten balls, wherein the web width is particularly reduced. However, the invention is equally suitable for counter track joints with an even number of at least four balls. For arranging the first pairs of tracks and the second pairs of tracks in joints with different numbers of balls, reference is made to the following description of the drawings.

Brief Description Of The Drawings

Preferred embodiments of the invention are illustrated in the drawings and will be described below.

On page 4 of the English language translation of the specification, please amend the first full paragraph of the specification to appear as follows:

Figure 1 shows a first embodiment of an inventive counter track joint:

- [[a))] A) in a longitudinal section;
- [[b₁))] B) in a longitudinal section during a first assembly phase;
- [[b₂))] C) in a cross-section through the ball cage during the first assembly phase;
- [[c₁))] D) in a longitudinal section during a second assembly phase; and
- [[c₂))] E) in a cross-section through the ball cage during the second assembly phase.

On page 4 of the English language translation of the specification, please amend the second full paragraph of the specification to appear as follows:

Figure 2 shows an inventive joint in the first assembly phase according to ~~Figure 1b~~
Figures 1B and 1C:

- [[a))] A) in a longitudinal section;
- [[b))] B) in an axial view of the joint aperture; and
- [[c))] C) in a cross-section through the ball cage.

On page 4 of the English language translation of the specification, please amend the third full paragraph of the specification to appear as follows:

Figure 3 shows an inventive joint in a second assembly phase according to ~~Figure 1c~~
Figures 1D and 1E:

- [[a))] A) in a longitudinal section;
- [[b))] B) in an axial view of the joint aperture; and
- [[c))] C) in a cross-section through the ball cage.

On page 4 of the English language translation of the specification, please amend the fourth full paragraph of the specification to appear as follows:

Figure 4 shows an inventive joint in a modified embodiment in the form of a disc joint:

- [[a))] A) in a longitudinal section;
- [[b))] B) in an axial view of the driving journal; and
- [[c))] C) in a cross-section through the ball configuration.

On page 4 and continuing on page 5 of the English language translation of the specification, please amend the fifth full paragraph of the specification to appear as follows:

Figure 5 shows different ball configurations of inventive joints:

- [[a)]] A) with ten balls;
- [[b₁)]] B) with eight balls;
- [[b₂)]] C) with eight balls;
- [[c)]] D) with six balls; and
- [[d)]] E) with four balls.

On page 5 of the English language translation of the specification, please add a heading before first full paragraph of the specification to appear as follows:

Detailed Description

The following descriptions of the individual illustrations of Figure 1 partly overlap.

On page 5 and continuing on page 6 of the English language translation of the specification, please amend the second full paragraph of the specification to appear as follows:

Figure 4a 1A shows an inventive counter track joint 11 showing an outer joint part 12 with a base 20 and a joint aperture 21, as well as an inner joint part 13 with an inner aperture 26 and a shaft 27 inserted into the latter. In the longitudinal section through the joint, it is possible to identify one of the first balls 14 and one of the second balls 15. The first balls 14 run in pairs of first outer tracks 22 and first inner tracks 23 which widen from the aperture to the base, and the balls 15 run in pairs of second outer tracks 24 and second inner tracks 25 which widen from the base 20 to the aperture 21. The balls are held by a ball cage 28 in a common plane, and there are provided first windows 18 for the first balls 14 and second windows 19 for the second balls 15. For the purpose of

assembling the joint, the inner joint part 13, the ball cage 28 and the outer joint part 12 are inserted into one another in a way generally known in itself, wherein optionally, the longitudinal axes of the respective outer part and of the respective inner part have to be arranged in a position where they intersect one another, and the inner part, while being moved around its own longitudinal axis, is rolled into the outer part. Only then is the respective inner part again aligned coaxially relative to the outer part. Thereafter, the outer joint part 12, the ball cage 28 and the inner joint part 13 are inserted into one another, but the balls are not yet mounted. ~~The illustrations b~~ Figures 1B and 1C show the first balls 14 being introduced into the first pairs of tracks. The inner joint part 13 with its longitudinal axis L_i is articulated by an angle α_1 relative to the outer joint part 12 with its longitudinal axis L_A , with the ball cage 28 with its longitudinal axis L_K and its central plane respectively assuming an angle-bisecting position relative to the angle α_1 . The cage 28 and the joint parts 12, 13 are disposed in such a way that one of the first cage windows 18 is positioned centrally in the articulation plane and emerges from the outer joint part 12. In this position, which is also referred to as "over-articulation" of the joint, as it is not assumed in operation, a first ball 14 is inserted from the outside into said first cage window 18, whereupon the inner joint part 13 and the cage 28 are pivoted back, with the same process being repeated twice in other articulation planes, each turned by 120° for the purpose of inserting the further first balls 14. When inserting the last one of the balls 14 as shown in ~~illustration b~~ Figures 1B and 1C, the two other first balls – because of the way in which the track extends – assume a changed circumferential position in their cage windows 18 because of the track extension of the associated pairs of tracks 22, 23 positioned outside the articulation plane. To be able to permit said circumferential movement of the balls during assembly under "over-articulation" conditions, the first cage windows 18 have to have a circumferential length L_1 .

On page 6 and continuing on page 7 of the English language translation of the specification, please amend the first full paragraph of the specification to appear as follows:

~~Illustration c~~ Figures 1D and 1E shows the assembly of one of the second balls 15, more particularly of the last one of the second balls into one of the second pairs of tracks 24, 25. The inner joint part 13 with its longitudinal axis L_i is articulated by the angle α_2 , which is smaller than the previously mentioned angle α_1 , relative to the outer joint part 12 with its longitudinal axis L_A . The cage 28 with its longitudinal axis L_K and its central plane respectively assumes the angle-bisecting position with reference to said angle α_2 . In this case, too, because of the position of the further two pairs of tracks 24, 25 of the further two balls 15, which position is located outside the articulation plane, it is necessary for the further two balls in their cage windows 19 to be displaced in the circumferential direction. In order to permit said circumferential displacement of the

balls during assembly, i.e. during “over-articulation”, the two cage windows 19 in their circumferential direction have to have the length L_2 which, however, is smaller than the length L_1 of the first cage windows.

On page 7 of the English language translation of the specification, please amend the first full paragraph of the specification to appear as follows:

Figure 2 shows the inventive joint according to Figure 1 in the position according to ~~Figure 1b~~ Figures 1B and 1C during the assembly of the last one of the first balls 14. The shaft 27 which is inserted into the inner aperture 26 of the inner joint part 13 is shown in dashed lines. This illustration shows that when the shaft has been inserted, i.e. when the joint is in operation, “over-articulation” as shown here is no longer possible for mounting the balls because, long before reaching the articulation angle α_1 , the shaft 27 would collide with the edge of the outer joint part 12. ~~Illustration b~~ Figure 2B shows how the lower first cage window 18 has largely emerged from the outer joint part 12 for introducing the first ball 14 into the first inner track 23. ~~Illustration c~~ Figure 2C once again shows the position of the two other first balls ~~18~~ 14 which are positioned outside the articulation plane, with the joint being “over-articulated” by the angle α_1 for the purpose of introducing the last one of the first balls ~~18~~ 14.

On page 7 and continuing on page 8 of the English language translation of the specification, please amend the second full paragraph of the specification to appear as follows:

Figure 3 shows the inventive joint according to Figure 1 in the position according to ~~Figure 1b~~ Figures 1B and 1C during the assembly of the last one of the second balls 15. The shaft 27 which has been inserted into the inner aperture 26 of the inner joint part 13 is illustrated in dashed lines. ~~This illustration shows~~ These illustrations show that, when the shaft has been inserted, i.e. when the joint is ready for operation, “over-articulation” as shown here is no longer possible for mounting the balls because, long before reaching the articulation angle α_2 , the shaft 27 would collide with the edge of the outer joint part 12. ~~Illustration b~~ Figure 3B shows how the lower first cage window 19 has largely emerged from the outer joint part 12 for introducing the second ball 15 into the second inner track 25. ~~Illustration c~~ Figure 3C once again shows the position of the two other ~~first~~ second balls ~~18~~ 15 which are positioned outside the articulation plane, with the joint being “over-articulated” by the angle α_2 for the purpose of introducing the last one of the second balls ~~19~~ 15.

On page 9 of the English language translation of the specification, please amend the second full paragraph of the specification to appear as follows:

~~Illustration a~~ Figure 5A shows the balls of a ten-ball joint with circumferentially alternately arranged first and second balls 14, 15.

On page 9 of the English language translation of the specification, please amend the third full paragraph of the specification to appear as follows:

~~Illustration b₁~~ Figure 5B shows the balls of an eight-ball joint with circumferentially alternately arranged first and second balls 14, 15.

On page 9 of the English language translation of the specification, please amend the fourth full paragraph of the specification to appear as follows:

~~Illustration b₂~~ Figure 5C shows the balls of an eight-ball joint whose first and second balls 14, 15 are circumferentially alternately arranged in pairs, with alternately arranged pairs of first pairs of tracks 22, 23 and second pairs of tracks 24, 25 corresponding to same.

On page 9 of the English language translation of the specification, please amend the fifth full paragraph of the specification to appear as follows:

~~Illustration c~~ Figure 5D shows the balls of a six-ball joint with circumferentially alternately distributed first and second balls 14, 15.

On page 9 of the English language translation of the specification, please amend the sixth full paragraph of the specification to appear as follows:

~~Illustration d~~ Figure 5E shows the balls of a four-ball joint with circumferentially distributed first and second balls 14, 15.